The Plant Journal (1999) **20**(6), 727–731

Author index

Adkisson, M. *see* Century, K.S.
Aimé, S. *see* Hugot, K.
Albersheim, P. *see* Pauly, M.
Allenbach, L. *see* Mittendorf, V.
Almoguera, C. *see* Rojas, A.
Alonso-Blanco, C. *see* Swarup, K.
Amasino, R.M. *see* Swarup, K.
Andriessen, M. *see* Jacobs, J.J.M.R.
Angell, S.M. and Baulcombe, D.C. Potato virus X amplicon-mediated silencing of nuclear genes 357
Aranda, M.A., Escaler, M., Thomas, C.L. and Maule, A.J. A *heat shock transcription factor* in pea is differentially controlled by heat and virus replication 153
Arazi, T., Sunkar, R., Kaplan, B. and Fromm, H. A tobacco plasma membrane calmodulin-binding transporter confers Ni^{2+} tolerance and Pb^{2+} hypersensitivity in transgenic plants 171
Arna, T. *see* Jääskeläinen, M.
Aubert, S. *see* Mouillon, J.-M.

Bak, S., Olsen, C.E., Petersen, B.L., Møller, B.L. and Halkier, B.A. Metabolic engineering of *p*-hydroxybenzylglucosinolate in *Arabidopsis* by expression of the cyanogenic CYP79A1 from *Sorghum bicolor* 663
Bardet, C. *see* Tremousaygue, D.
Bates, P.W. and Vierstra, R.D. UPL1 and 2, two 405 kDa ubiquitin–protein ligases from *Arabidopsis thaliana* related to the HECT-domain protein family 183
Baudouin, E., Meskiene, I. and Hirt, H. Unsaturated fatty acids inhibit MP2C, a protein phosphatase 2C involved in the wound-induced MAP kinase pathway regulation 343
Bauer, D.W. *see* Dong, H.
Baulcombe, D.C. *see* Angell, S.M.
Beer, S.V *see* Dong, H.
Bellés, J.M. *see* Espinosa-Ruiz, A.
Bethke, P.C. *see* Fath, A.
Beyerly, J. *see* Munnik, T.
Blaszczyk, A., Brodzik, R. and Sirko, A. Increased resistance to oxidative stress in transgenic tobacco plants overexpressing bacterial serine acetyltransferase 237
Blatt, M.R. *see* Frohnmeyer, H.
Bongcam, V. *see* Mittendorf, V.
Booij, P.P., Roberts, M.R., Vogelzang, S.A., Kraayenhof, R. and de Boer, A.H. 14-3-3 proteins double the number of outward-rectifying K^+-channels available for activation in tomato cells 673
Bots, M. *see* Jacobs, J.J.M.R.
Bourguignon, J. *see* Mouillon, J.-M.
Brandt, S., Kehr, J., Walz, C., Imlau, A., Willmitzer, L. and Fisahn, J. A rapid method for detection of plant gene transcripts from single epidermal, mesophyll and companion cells of intact leaves 245
Brennicke, A. *see* Rasmusson, A.G.
Brodzik, R. *see* Blaszczyk, A.
Brunold, C. *see* Kopriva, S.

Calderini, O. *see* Munnik, T.
Capel, J. *see* Molinero-Rosales, N.
Catalano, C. *see* Kopriva, S.
Century, K.S., Lagman, R.A., Adkisson, M., Morlan, J., Tobias, R., Schwartz, K., Smith, A., Love, J., Ronald, P.C. and Whalen, M.C. Developmental control of *Xa21*-mediated disease resistance in rice 231
Chanliaud, E. and Gidley, M.J. *In vitro* synthesis and properties of pectin/*Acetobacter xylinus* cellulose composites 25
Chen, X. *see* Itoh, H.
Christoffel, A. *see* Schweizer, P.
Clarke, J.H., Tack, D., Findlay, K., Van Montagu, M. and Van Lijsebettens, M. The *SERRATE* locus controls the formation of the early juvenile leaves and phase length in *Arabidopsis* 493
Colburn, S. *see* Shewmaker, C.K.
Coleman, J.E. *see* Stoop-Myer, C.
Colón-Carmona, A., You, R., Haimovitch-Gal, T. and Doerner, P. Spatio-temporal analysis of mitotic activity with a labile cyclin–GUS fusion protein 503
Conejero, V. *see* Domingo, C.
Conejero, V. *see* Mayda, E.
Conner, A. *see* Jordan, N.D.
Conrod, S. *see* Hugot, K.
Cornelissen, M. *see* Jacobs, J.J.M.R.
Coullerez, G. *see* Mittendorf, V.
Crosby, W.L. *see* Samach, A.
Culiáñez-Macià, F.A. *see* Espinosa-Ruiz, A.

Daley, M. *see* Shewmaker, C.K.
Daniel, X., Lacomme, C., Morel, J.-B. and Roby, D. A novel *myb* oncogene homologue in *Arabidopsis thaliana* related to hypersensitive cell death 57
Darvill, A. *see* Pauly, M.
De Boer, A.H. *see* Booij, P.P.
De Buck, S., Jacobs, A., Van Montagu, M. and Depicker, A. The DNA sequences of T-DNA junctions suggest that complex T-DNA loci are formed by a recombination process resembling T-DNA integration 295
De Wit, P.J.G.M *see* Takken, F.L.W.
Deighton, N., Muckenschnabel, I., Goodman, B.A. and Williamson, B. Lipid peroxidation and the oxidative burst associated with infection of *Capsicum annuum* by *Botrytis cinerea* 485
Delaney, T.P. *see* Dong, H.
DeLong, A. *see* Deruère, J.
Deng, X.-W. *see* Stoop-Myer, C.
Depicker, A. *see* De Buck, S.
Deruère, J., Jackson, K., Garbers, C., Söll, D. and DeLong, A. The *RCN1*-encoded A subunit of protein phosphatase 2A increases phosphatase activity *in vivo* 389
Dickerman, A.W. *see* Meyers, B.C.
Doerner, P. *see* Colón-Carmona, A.
Domingo, C., Saurí, A., Mansilla, E., Conejero, V. and Vera, P. Identification of a novel peptide motif that mediates cross-linking of proteins to cell walls 563
Dong, H., Delaney, T.P., Bauer, D.W. and Beer, S.V. Harpin induces disease resistance in *Arabidopsis* through the systemic acquired resistance pathway mediated by salicylic acid and the *NIM1* gene 207
Donnison, I.S. *see* Matsunaga, S.
Douce, R. *see* Mouillon, J.-M.
Dudler, R. *see* Schweizer, P.

Escaler, M. *see* Aranda, M.A.

© 1999 Blackwell Science Ltd

Espinosa-Ruiz, A., Bellés, J.M., Serrano, R. and Culiáñez-Macià, F.A. *Arabidopsis thaliana* AtHAL3: a flavoprotein related to salt and osmotic tolerance and plant growth 529
Eyal, Y. *see* Jacob-Wilk, D.

Fang, Y. *see* Kang, H.-G.
Fath, A., Bethke, P.C. and Jones, R.L. Barley aleurone cell death is not apoptotic: characterization of nuclease activities and DNA degradation 305
Findlay, K. *see* Clarke, J.H.
Fisahn, J. *see* Brandt, S.
Forkmann, G. *see* Martens, S.
Franklin, F.C H. *see* Jordan, N.D.
Franklin-Tong, V.E. *see* Jordan, N.D.
Fricker, M. *see* Tlałka, M.
Frohnmeyer, H., Loyall, L., Blatt, M.R. and Grabov, A. Millisecond UV-B irradiation evokes prolonged elevation of cytosolic-free Ca^{2+} and stimulates gene expression in transgenic parsley cell cultures 109
Fromm, H. *see* Arazi, T.
Funk, M. *see* Hennig, L.

Galiana, E. *see* Hugot, K.
Garbers, C. *see* Deruère, J.
Gassmann, W., Hinsch, M.E. and Staskawicz, B.J. The *Arabidopsis RPS4* bacterial-resistance gene is a member of the TIR-NBS-LRR family of disease-resistance genes 265
Gidley, M.J. *see* Chanliaud, E.
Gill, A. *see* Hartwell, J.
Glössl, J. *see* Peterbauer, T.
Goetz, M. and Roitsch, T. The different pH optima and substrate specificities of extracellular and vacuolar invertases from plants are determined by a single amino-acid substitution 707
Goldschmidt, E.E. *see* Jacob-Wilk, D.
Golstein, C. *see* Takken, F.L.W.
Gómez, P. *see* Molinero-Rosales, N.
Gómez-Mena, C. *see* Roldán, M.
Goodman, B.A. *see* Deighton, N.
Gout, E. *see* Mouillon, J.-M.
Gowda, B.S., Riopel, J.L. and Timko, M.P. *NRSA-1*: a resistance gene homolog expressed in roots of non-host plants following parasitism by *Striga asiatica* (witchweed) 217
Grabov, A. *see* Frohnmeyer, H.
Graham, I.A. *see* Hooks, M.A.
Grant, S.R. *see* Matsunaga, S.
Gray, J.C. *see* Lao, N.T.
Grohmann, L. *see* Rasmusson, A.G.
Gu, Y.Q. *see* Thara, V.K.

Haasen, D., Köhler, C., Neuhaus, G. and Merkle, T. Nuclear export of proteins in plants: AtXPO1 is the export receptor for leucine-rich nuclear export signals in *Arabidopsis thaliana* 695
Haimovitch-Gal, T. *see* Colón-Carmona, A.
Halkier, B.A. *see* Bak, S.
Hartwell, J., Gill, A., Nimmo, G.A., Wilkins, M.B., Jenkins, G.I. and Nimmo, H.G. Phosphoenolpyruvate carboxylase kinase is a novel protein kinase regulated at the level of expression 333
Haughn, G.W. *see* Samach, A.
Hennig, L., Funk, M., Whitelam, G.C. and Schäfer, E. Functional interaction of cryptochrome 1 and phytochrome D 289
Hibberd, J.M. *see* Lao, N.T.
Hille, J. *see* Takken, F.L.W.
Hinsch, M.E. *see* Gassmann, W.
Hirt, H. *see* Baudouin, E.
Hirt, H. *see* Munnik, T.
Holland, D. *see* Jacob-Wilk, D.
Hooks, M.A, Kellas, F. and Graham, I.A. Long-chain acyl-CoA oxidases of *Arabidopsis* 1
Hugot, K., Aimé, S., Conrod, S., Poupet, A. and Galiana, E. Developmental regulated mechanisms affect the ability of a fungal pathogen to infect and colonize tobacco leaves 163
Hwang, C.H. *see* Malik, M.K.

Imlau, A. *see* Brandt, S.
Itoh, H., Tanaka-Ueguchi, M., Kawaide, H., Chen, X., Kamiya, Y. and Matsuoka, M. The gene encoding tobacco gibberellin 3β-hydroxylase is expressed at the site of GA action during stem elongation and flower organ development 15

Jääskeläinen, M., Mykkänen, A.-H., Arna, T., Vicient, C.M., Suoniemi, A., Kalendar, R., Savilahti, H. and Schulman, A.H. Retrotransposon BARE-1: expression of encoded proteins and formation of virus-like particles in barley cells 413
Jackson, K. *see* Deruère, J.
Jacobs, A. *see* De Buck, S.
Jacobs, J.J.M.R., Sanders, M., Bots, M., Andriessen, M., van Eldik, G.J., Litière, K., Van Montagu, M. and Cornelissen, M. Sequences throughout the basic β-1,3-glucanase mRNA coding region are targets for homology dependent post-transcriptional gene silencing 143
Jacob-Wilk, D., Holland, D., Goldschmidt, E.E., Riov, J. and Eyal, Y. Chlorophyll breakdown by chlorophyllase: isolation and functional expression of the *Chlase1* gene from ethylene-treated *Citrus* fruit and its regulation during development 653
Jamilena, M. *see* Molinero-Rosales, N.
Jenkins, G.I. *see* Hartwell, J.
Jones, J.D.G *see* Takken, F.L.W.
Jones, R.L. *see* Fath, A.
Joosten, M.H.A.J. *see* Takken, F.L.W.
Jordan, N.D., Kakeda, K., Conner, A., Ride, J.P., Franklin-Tong, V.E. and Franklin, F.C.H. S-protein mutants indicate a functional role for SBP in the self-incompatibility reaction of *Papaver rhoeas* 119
Jordano, J. *see* Rojas, A.

Kakeda, K. *see* Jordan, N.D.
Kalendar, R. *see* Jääskeläinen, M.
Kamiya, Y. *see* Itoh, H.
Kang, H.-G., Fang, Y. and Singh, K.B. A glucocorticoid-inducible transcription system causes severe growth defects in *Arabidopsis* and induces defense-related genes 127
Kangasjärvi, J. *see* Pellinen, R.
Kaplan, B. *see* Arazi, T.
Kavanagh, T.A. *see* Lao, N.T.
Kawaide, H. *see* Itoh, H.
Kawano, S. *see* Matsunaga, S.
Ke, D.Y. *see* Shewmaker, C.K.
Kehr, J. *see* Brandt, S.
Kellas, F. *see* Hooks, M.A.
Klenz, J.E. *see* Samach, A.
Knoop, V. *see* Rasmusson, A.G.
Knox, J.P. *see* Willats, W.G.T.
Kohalmi, S.E. *see* Samach, A.
Köhler, C. *see* Haasen, D.
König, K. *see* Tirlapur, U.K.
Koornneef, M. *see* Swarup, K.

Kopriva, S., Muheim, R., Koprivova, A., Trachsel, N., Catalano, C., Suter, M. and Brunold, C. Light regulation of assimilatory sulphate reduction in *Arabidopsis thaliana* 37
Koprivova, A. *see* Kopriva, S.
Kraayenhof, R. *see* Booij, P.P.
Kuroiwa, T. *see* Matsunaga, S.

Lacomme, C. *see* Daniel, X.
Lagman, R.A. *see* Century, K.S.
Lao, N.T., Schoneveld, O., Mould, R.M., Hibberd, J.M., Gray, J.C. and Kavanagh, T.A. An *Arabidopsis* gene encoding a chloroplast-targeted β-amylase 519
León, J. *see* Rojo, E.
Lescure, B. *see* Tremousaygue, D.
Lescure, N. *see* Tremousaygue, D.
Ligterink, W. *see* Munnik, T.
Litière, K. *see* Jacobs, J.J.M.R.
Love, J. *see* Century, K.S.
Loyall, L. *see* Frohnmeyer, H.
Lozano, R. *see* Molinero-Rosales, N.
Lynn, J.R. *see* Swarup, K.

Malik, M.K., Slovin, J.P., Hwang, C.H. and Zimmerman, J.L. Modified expression of a carrot small heat shock protein gene, *Hsp17.7*, results in increased or decreased thermotolerance 89
Manevski, A. *see* Tremousaygue, D.
Mansilla, E. *see* Domingo, C.
Marcus, S.E. *see* Willats, W.G.T.
Martens, S. and Forkmann, G. Cloning and expression of flavone synthase II from *Gerbera* hybrids 611
Martin, G.B. *see* Thara, V.K.
Martínez-García, J.F., Monte, E. and Quail, P.H. A simple, rapid and quantitative method for preparing *Arabidopsis* protein extracts for immunoblot analysis 251
Martínez-Zapater, J.M. *see* Roldán, M.
Martini, N. *see* Mittendorf, V.
Matsumura, H., Nirasawa, S. and Terauchi, R. Transcript profiling in rice (*Oryza sativa* L.) seedlings using serial analysis of gene expression (SAGE) 719
Matsunaga, S., Schütze, K., Donnison, I.S., Grant, S.R., Kuroiwa, T. and Kawano, S. Single pollen typing combined with laser-mediated manipulation 371
Matsuoka, M. *see* Itoh, H.
Maule, A.J. *see* Aranda, M.A.
Mayda, E., Tornero, P., Conejero, V. and Vera, P. A tomato homeobox gene (HD-Zip) is involved in limiting the spread of programmed cell death 591
McCormick, S. *see* Ylstra, B.
McNellis, T.W. *see* Stoop-Myer, C.
Meier, I. *see* Rose, A.
Merkle, T. *see* Haasen, D.
Meskiene, I. *see* Baudouin, E.
Meskiene, I. *see* Munnik, T.
Meyers, B.C., Dickerman, A.W., Michelmore, R.W., Sivaramakrishnan, S., Sobral, B.W. and Young, N.D. Plant disease resistance genes encode members of an ancient and diverse protein family within the nucleotide-binding superfamily 317
Michaels, S.D. *see* Swarup, K.
Michelmore, R.W. *see* Meyers, B.C.
Millar, A.J. *see* Swarup, K.
Mittendorf, V., Bongcam, V., Allenbach, L., Coullerez, G., Martini, N. and Poirier, Y. Polyhydroxyalkanoate synthesis in transgenic plants as a new tool to study carbon flow through β-oxidation 45
Molinero-Rosales, N., Jamilena, M., Zurita, S., Gómez, P., Capel, J. and Lozano, R. *FALSIFLORA*, the tomato orthologue of *FLORICAULA* and *LEAFY*, controls flowering time and floral meristem identity 685
Møller, B.L. *see* Bak, S.
Monte, E. *see* Martínez-García, J.F.
Morel, J.-B. *see* Daniel, X.
Morlan, J. *see* Century, K.S.
Mouillon, J.-M., Aubert, S., Bourguignon, J., Gout, E., Douce, R. and Rébeillé, F. Glycine and serine catabolism in non-photosynthetic higher plant cells: their role in C1 metabolism 197
Mould, R.M. *see* Lao, N.T.
Mucha, J. *see* Peterbauer, T.
Muckenschnabel, I. *see* Deighton, N.
Muheim, R. *see* Kopriva, S.
Munnik, T., Ligterink, W., Meskiene, I., Calderini, O., Beyerly, J., Musgrave, A. and Hirt, H. Distinct osmo-sensing protein kinase pathways are involved in signaling moderate and severe hyper-osmotic stress 381
Musgrave, A. *see* Munnik, T.
Mykkänen, A.-H. *see* Jääskeläinen, M.

Neuhaus, G. *see* Haasen, D.
Nijkamp, H.J.J. *see* Takken, F.L.W.
Nimmo, G.A. *see* Hartwell, J.
Nimmo, H.G. *see* Hartwell, J.
Nirasawa, S. *see* Matsumura, H.

Olsen, C.E. *see* Bak, S.
Ovadis, M. *see* Vishnevetsky, M.

Palva, T. *see* Pellinen, R.
Pauly, M., Albersheim, P., Darvill, A. and York, W.S. Molecular domains of the cellulose/xyloglucan network in the cell walls of higher plants 629
Pellinen, R., Palva, T. and Kangasjärvi, J. Subcellular localization of ozone-induced hydrogen peroxide production in birch (*Betula pendula*) leaf cells 349
Peterbauer, T., Mucha, J., Popp, M., Glössl, J. and Richter, A. Stachyose synthesis in seeds of adzuki bean (*Vigna angularis*): molecular cloning and functional expression of stachyose synthase 509
Petersen, B.L. *see* Bak, S.
Poirier, Y. *see* Mittendorf, V.
Popp, M. *see* Peterbauer, T.
Poupet, A. *see* Hugot, K.

Quail, P.H. *see* Martínez-García, J.F.

Rasmusson, A.G., Svensson, Å.S., Knoop, V., Grohmann, L. and Brennicke, A. Homologues of yeast and bacterial rotenone-insensitive NADH dehydrogenases in higher eukaryotes: two enzymes are present in potato mitochondria 79
Rébeillé, F. *see* Mouillon, J.-M.
Richter, A. *see* Peterbauer, T.
Ride, J.P. *see* Jordan, N.D.
Riopel, J.L. *see* Gowda, B.S.
Riov, J. *see* Jacob-Wilk, D.
Risseeuw, E. *see* Samach, A.
Roberts, M.R. *see* Booij, P.P.

Roby, D. *see* Daniel, X.
Roitsch, T. *see* Goetz, M.
Rojas, A., Almoguera, C. and Jordano, J. Transcriptional activation of a heat shock gene promoter in sunflower embryos: synergism between AB13 and heat shock factors 601
Rojo, E., León, J. and Sánchez-Serrano, J.J. Cross-talk between wound signalling pathways determines local versus systemic gene expression in *Arabidopsis thaliana* 135
Roldán, M., Gómez-Mena, C., Ruiz-García, L., Salinas, J. and Martínez-Zapater, J.M. Sucrose availability on the aerial part of the plant promotes morphogenesis and flowering of *Arabidopsis* in the dark 581
Ronald, P.C. *see* Century, K.S.
Rose, A., Meier, I. and Wienand, U. The tomato I-box binding factor LeMYBI is a member of a novel class of Myb-like proteins 641
Ruiz-García, L. *see* Roldán, M.
Runquist, M. *see* Tlałka, M.

Salinas, J. *see* Roldán, M.
Samach, A., Klenz, J.E., Kohalmi, S.E., Risseeuw, E., Haughn, G.W. and Crosby, W.L. The *UNUSUAL FLORAL ORGANS* gene of *Arabidopsis thaliana* is an F-box protein required for normal patterning and growth in the floral meristem 433
Sánchez-Serrano, J.J. *see* Rojo, E.
Sanders, M. *see* Jacobs, J.J.M.R.
Saurí, A. *see* Domingo, C.
Savilahti, H. *see* Jääskeläinen, M.
Schäfer, E. *see* Hennig, L.
Schoneveld, O. *see* Lao, N.T.
Schulman, A.H. *see* Jääskeläinen, M.
Schütze, K. *see* Matsunaga, S.
Schwartz, K. *see* Century, K.S.
Schweizer, P., Christoffel, A. and Dudler, R. Transient expression of members of the *germin*-like gene family in epidermal cells of wheat confers disease resistance 541
Serrano, R. *see* Espinosa-Ruiz, A.
Sessions, A., Weigel, D. and Yanofsky, M.F. The *Arabidopsis thaliana MERISTEM LAYER 1* promoter specifies epidermal expression in meristems and young primordia 259
Sheehy, J.A. *see* Shewmaker, C.K.
Shewmaker, C.K., Sheehy, J.A., Daley, M., Colburn, S. and Ke, D.Y. Seed-specific overexpression of phytoene synthase: increase in carotenoids and other metabolic effects 401
Shinshi, H. *see* Yamamoto, S.
Singh, K.B. *see* Kang, H.-G.
Sirko, A. *see* Blaszczyk, A.
Sivaramakrishnan, S. *see* Meyers, B.C.
Slovin, J.P. *see* Malik, M.K.
Smith, A. *see* Century, K.S.
Sobral, B.W. *see* Meyers, B.C.
Söll, D. *see* Deruère, J.
Staskawicz, B.J. *see* Gassmann, W.
Steele-King, C.G. *see* Willats, W.G.T.
Stoop-Myer, C., Torii, K.U., McNellis, T.W., Coleman, J.E. and Deng, X.-W. The N-terminal fragment of Arabidopsis photomorphogenic repressor COP1 maintains partial function and acts in a concentration-dependent manner 713
Sunkar, R. *see* Arazi, T.
Suoniemi, A. *see* Jääskeläinen, M.
Suter, M. *see* Kopriva, S.
Suzuki, K. *see* Yamamoto, S.
Svensson, Å.S. *see* Rasmusson, A.G.
Swarup, K., Alonso-Blanco, C., Lynn, J.R., Michaels, S.D., Amasino, R.M., Koornneef, M. and Millar, A.J. Natural allelic variation identifies new genes in the *Arabidopsis* circadian system 67

Tack, D. *see* Clarke, J.H.
Takken, F.L.W., Thomas, C.M., Joosten, M.H.A.J., Golstein, C., Westerink, N., Hille, J., Nijkamp, H.J.J., De Wit, P.J.G.M and Jones, J.D.G. A second gene at the tomato *Cf-4* locus confers resistance to *Cladosporium fulvum* through recognition of a novel avirulence determinant 279
Tanaka-Ueguchi, M. *see* Itoh, H.
Tang, X. *see* Thara, V.K.
Terauchi, R. *see* Matsumura, H.
Thara, V.K., Tang, X., Gu, Y.Q., Martin, G.B. and Zhou, J.-M. *Pseudomonas syringae* pv *tomato* induces the expression of tomato *EREBP*-like genes *Pti4* and *Pti5* independent of ethylene, salicylate and jasmonate 475
Thomas, C.L. *see* Aranda, M.A.
Thomas, C.M. *see* Takken, F.L.W.
Timko, M.P. *see* Gowda, B.S.
Tirlapur, U.K. and König, K. Near-infrared femtosecond laser pulses as a novel non-invasive means for dye-permeation and 3D imaging of localised dye-coupling in the *Arabidopsis* root meristem 363
Tlałka, M. and Fricker, M. The role of calcium in blue-light-dependent chloroplast movement in *Lemna trisulca* L. 461
Tlałka, M., Runquist, M. and Fricker, M. Light perception and the role of the xanthophyll cycle in blue-light-dependent chloroplast movements in *Lemna trisulca* L. 447
Tobias, R. *see* Century, K.S.
Torii, K.U. *see* Stoop-Myer, C.
Tornero, P. *see* Mayda, E.
Trachsel, N. *see* Kopriva, S.
Tremousaygue, D., Manevski, A., Bardet, C., Lescure, N. and Lescure, B. Plant interstitial telomere motifs participate in the control of gene expression in root meristems 553

Vainstein, A. *see* Vishnevetsky, M.
van Eldik, G.J. *see* Jacobs, J.J.M.R.
Van Lijsebettens, M. *see* Clarke, J.H.
Van Montagu, M. *see* Clarke, J.H.
Van Montagu, M. *see* De Buck, S.
Van Montagu, M. *see* Jacobs, J.J.M.R.
Vera, P. *see* Domingo, C.
Vera, P. *see* Mayda, E.
Vicient, C.M. *see* Jääskeläinen, M.
Vierstra, R.D. *see* Bates, P.W.
Vishnevetsky, M., Ovadis, M., Zuker, A. and Vainstein, A. Molecular mechanisms underlying carotenogenesis in the chromoplast: multilevel regulation of carotenoid-associated genes 423
Vogelzang, S.A. *see* Booij, P.P.

Walz, C. *see* Brandt, S.
Weigel, D. *see* Sessions, A.
Westerink, N. *see* Takken, F.L.W.
Whalen, M.C. *see* Century, K.S.
Whitelam, G.C. *see* Hennig, L.
Wienand, U. *see* Rose, A.
Wilkins, M.B. *see* Hartwell, J.

Willats, W.G.T., Steele-King, C.G., Marcus, S.E. and Knox, J.P. Side chains of pectic polysaccharides are regulated in relation to cell proliferation and cell differentiation 619
Williamson, B. *see* Deighton, N.
Willmitzer, L. *see* Brandt, S.

Yamamoto, S., Suzuki, K. and Shinshi, H. Elicitor-responsive, ethylene-independent activation of GCC box-mediated transcription that is regulated by both protein phosphorylation and dephosphorylation in cultured tobacco cells 571
Yanofsky, M.F. *see* Sessions, A.
Ylstra, B. and McCormick, S. Analysis of mRNA stabilities during pollen development and in BY2 cells 101
York, W.S. *see* Pauly, M.
You, R. *see* Colón-Carmona, A.
Young, N.D. *see* Meyers, B.C.

Zhou, J.-M. *see* Thara, V.K.
Zimmerman, J.L. *see* Malik, M.K.
Zuker, A. *see* Vishnevetsky, M.
Zurita, S. *see* Molinero-Rosales, N.

The Plant Journal (1999) **20**(6), 733–735

Subject index

AB13 601
abscisic acid 305
Acetobacter xylinus 25
acquired resistance 163
ActinomycinD 101
active oxygen 541
acyl-CoA oxidase 1
adult resistance 231
Agrobacterium-mediated transformation 295
anaerobic stress 719
AP3 433
Arabidopsis 1, 45, 183, 207, 251, 259, 265, 289, 317, 363, 519, 529, 581, 713
Arabidopsis thaliana 57, 67, 333, 389, 433, 553, 695
arabinan 619
ASK 433
avrRps4 265

β-oxidation 1, 45
bacterial blight 231, 265
barley 413
barley aleurone 305
Betula pendula 349
bioactive GAs 15
biological clocks 67
biopolymer 45
biosynthesis 401
blue light 447, 461
Blumeria graminis 541
Botrytis cinerea 485
Brassica 401
BY2 cells 101

C1 metabolism 197
calcium 171, 343, 461
carotenogenesis 423
carotenoid-associated genes 423
carotenoids 401
carrot 89
CD domain 563
cDNA 509
cell–cell communication 363
cell wall 629
cell wall architecture 25
cell wall mechanics 25
cell wall protein 563
cellulose 25
chalcone synthase 109
channel 171
chitinase gene 571
chlorophyll degradation 653
chlorophyllase 653
chloroplast import 519
chloroplast movement 447, 461
chloroplast-targeted β-amylase 519
chromoplast 423
circadian rhythm 67, 333, 641
citrus 653
Cladosporium fulvum 279
companion cell 245
compositae 611

confocal microscopy 447, 461
COP1 713
corn 317
co-suppression 143
co-transformation 295
crassulacean acid metabolism 333
CRM1 695
cryptochrome 289
ct-Bmy gene 519
cucumber 423
cyanogenic glucoside 663
cyclic nucleotides 171
cyclin 503
cysteine biosynthesis 37
cysteine metabolism 237
cytochrome P450 611, 663

dark-flowering 581
defence 591
defensins 127
destabilization 503
destruction box 503
development 163, 619, 713
DEX 127
differential cell elongation 389
dioecious plant 371
disease resistance 265, 279
diurnal rhythm 37
DNA degradation 305
double-stranded break repair 295
dye-coupling 363

E3 183
EF-hand 79
elicitor 571
ethylene 135, 475, 653
ethylene-responsive transcription factors 571
expression analysis 37
expression in yeast 611

falsiflora 685
fatty acid 1
F-box protein 433
flavone synthase II gene 611
flavonoid biosynthesis 611
flavoprotein 529
floral meristem identity 685
flower development 423
flowering 581
flowering time 67
fruit ripening 653
functional genomics 719

GA 3β-hydroxylase 15
galactan 619
galactosyl ononitol 509
GCC box 571
gene expression 1, 153, 217, 231
gene silencing 143, 357
gene transcription control 553
Gerbera hybrids 611

© 1999 Blackwell Science Ltd

GFP fusion protein 519
gibberellic acid 305
gibberellin 15, 581
gibberellin A_3 653
glucanase 143
glucosinolate 663
glutathione 237
glycine decarboxylase complex 197
glycine metabolism 197
GUS 503
GVG 127

H_2O_2 349
harpin 207
haustorium 217
Hcr9-4s 279
HD-Zip 591
heat shock 89
heat shock elements 601
heat shock transcription factor 601
heavy metals 171
HECT domain 183
Hordeum vulgare 413
HSE 153
Hsf 153
Hsp 89
hydroxyalkenals 485
hypersensitive response 57, 591
hypocotyl growth 289

IBF 641
I-box 641
illegitimate recombination 295
immunoblot analysis 251
inflorescence 493
interstitial telomere motifs 553
intracellular $[Ca^{2+}]$ 109
invertase isoenzymes 707
inverted and direct repeat 295
isodityrosine 563

jasmonate 475
jasmonic acid 135

Kalanchoë fedtschenkoi 333

L1 259
laser beam 371
leaves 493
Lemna trisulca L. 447, 461
lesion 591
leucine-rich NES 695
ligase 183
light regulation 37, 713
linolenic acid 343
lipid peroxidation 485
luciferase expression 109

MADS-box gene 67
malondialdehyde 485
MAP kinase pathway 343
mechanical damage 135
meristem layers 259
metabolic engineering 663
micro sampling 245
minimal invasive method 245
mitochondria 79
mitogen-activated protein kinase 381
mitosis 503
Msk8 cell line 673
mutants 57
MYB gene 57
myb protein 641

NBS 317
NDH-2 79
near-infrared 363
NIM1/NPR1 207
^{13}C NMR 197
nuclear export of proteins 695
nucleases 305

oligosaccharides 135
organ elongation 389
osmotic stress 381
outward K^+ channels 673
overexpression 401
oxalate oxidase 541
oxidative burst 349
oxidative stress 237
ozone 349

Papaver rhoeas 119
parsley cell culture 109
patch-clamp 673
PCR 371
PDF1.2 127
pea 153
pectic polysaccharides 619
pectin 25
penetration peg 217
peroxisome 1, 45
phase length 493
phloem 529
pH-optimum 707
phosphatase inhibitor 389
phosphoenolpyruvate carboxylase kinase 333
photomorphogenesis 581, 713
phytochrome 251, 289
phytoene synthase 401
Phytophthora 163
phytoremediation 171
PI 433
plant cell wall 25
plant defense 127
plant transcription 127
plant–pathogen interactions 57
pollen 371
pollen development 101
polyhydroxyalkanoate 45
polyprotein translation 413
potato virus X 357
PR-genes 475
programmed cell death 57, 305
promoter 153
protein crosslinking 541
protein extraction 251
protein import 79

protein phosphatase 2A 389
protein phosphatase 2C 343
protein phosphorylation 333
14-3-3 proteins 673
proteolysis 183, 503
Pseudomonas syringae 265
Pto 475
Purα 553

quantitative trait locus 67

raffinose oligosaccharides 509
RanBP1 695
RBCS promoter 641
redox 485
regulatory subunit 389
resistance gene 231
resistance 217, 317
retrotransposon *BARE*-1 413
reverse transcriptase 413
R-gene 317
rhamnogalacturonan I 619
rice 317, 719
RNA stability 101
root meristem 363
ROS 349
rotenone-insensitive NADH dehydrogenase 79
RPS4 265

salicyclic acid 207
salicylate 475
salt stress 381
salt tolerance 529
SBP 119
seedling 713
seeds 509
self-incompatibility 119
serial analysis of gene expression 719
serine acetyltransferase 237
serine catabolism 197
SERRATE (SE) 493
sex chromosome 371
signal transduction 109, 381, 475
signaling 207
single cell gene expression pattern 245
single cell RT PCR 245
site-directed mutagenesis 119, 707
Solanum tuberosum 79
stachyose synthase 509
stem elongation 15
stigmatic S-genes 119
STNV 143
Striga asiatica 217
substrate specificity 707
sucrose 581
sulfate assimilation 37
sunflower 601
superoxide 591
systemic acquired resistance (SAR) 207

T-DNA integration 295
thermotolerance 89
thioesterase 45
TLRP 563
TNV 143
tobacco 15, 43, 163
tobacco cells 571
tomato 279, 673, 685
tracheary element 563
transcription factor 475, 591, 641
transcriptional regulation 423
transcriptome 719
transformed plants 357
transgenic plants 89, 237, 529
transient expression 601
translational apparatus 553
transposon tagging 279
two-photon imaging 363

ubiquitin 183
UFO 433
ultrastructure 349
UV-B light (280–320 nm) 109

venation 493
Vigna angularis 509
virus-induced gene silencing 143
virus-like particles 413
virus replication 153
virus resistance 357

witchweed 217
wounding 343

Xanthomonas oryzae 231
xanthophyll cycle 447
XPO1 695
xylanase 571
xyloglucan 629
xyloglucan oligosaccharide 629

yeast 529

zeaxanthin 447
zygotic embryos 601

THE plant JOURNAL

VOLUME 20

Editors

Thomas Altmann

Dianna Bowles

Jeff Dangl

Jean Dénarié

Jérôme Giraudat

Harry Klee

Maarten Koornneef

Cathie Martin

Gregory Martin

Julian Schroeder

Kazuo Shinozaki

Mark Stitt

Published by Blackwell Science Ltd,
in association with the Society for Experimental Biology

© 1999 Blackwell Science Ltd and the Society for Experimental Biology. Authorization to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Blackwell Science Ltd and the Society for Experimental Biology for libraries and other users registered with the Copyright Clearance Centre (CCC) Transactional Reporting Service, provided that the base fee of $14.00 per copy is paid directly to the CCC, 222 Rosewood Drive, Suite 910, Danvers, MA 01923, USA. This consent does not extend to other kinds of copying, such as copying for general distribution for advertising or promotional purposes, for creating new collective works or for resale. Special requests should be addressed to the Chief Editor.
0960-7412/99 $14.00.

Published by Blackwell Science Ltd, in association with the Society for Experimental Biology

Blackwell Science Ltd

Osney Mead, Oxford OX2 0EL, UK
25 John Street, London WC1N 2BL, UK
23 Ainslie Place, Edinburgh EH3 6AJ, UK

Blackwell Science Inc., Commerce Place, 350 Main Street, Malden, MA 02148-5018, USA
Blackwell Science Asia, 54 University Street, Carlton South, Victoria 3053, Australia
Blackwell Wissenschafts-Verlag GmbH, Kurfürstendamm 57, 10707 Berlin, Germany
Blackwell Science KK, MG-Kodenmacho Building, 7–10 Kodenmacho Nihombashi, Cho-ku, Tokyo 103-0001, Japan
Blackwell Science Ltd, 10 rue Casimir Delavigne, 75006 Paris, France

ISSN 0960-7412

Typeset and printed by Information Press Ltd, Oxford, UK.

Contents

Number 1 October 1999

1 **Long-chain acyl-CoA oxidases of *Arabidopsis*.** *M.A. Hooks, F. Kellas and I.A. Graham*

15 **The gene encoding tobacco gibberellin 3β-hydroxylase is expressed at the site of GA action during stem elongation and flower organ development.** *H. Itoh, M. Tanaka-Ueguchi, H. Kawaide, X. Chen, Y. Kamiya and M. Matsuoka*

25 ***In vitro* synthesis and properties of pectin/*Acetobacter xylinus* cellulose composites.** *E. Chanliaud and M.J. Gidley*

37 **Light regulation of assimilatory sulphate reduction in *Arabidopsis thaliana*.** *S. Kopriva, R. Muheim, A. Koprivova, N. Trachsel, C. Catalano, M. Suter and C. Brunold*

45 **Polyhydroxyalkanoate synthesis in transgenic plants as a new tool to study carbon flow through β-oxidation.** *V. Mittendorf, V. Bongcam, L. Allenbach, G. Coullerez, N. Martini and Y. Poirier*

57 **A novel *myb* oncogene homologue in *Arabidopsis thaliana* related to hypersensitive cell death.** *X. Daniel, C. Lacomme, J.-B. Morel and D. Roby*

67 **Natural allelic variation identifies new genes in the *Arabidopsis* circadian system.** *K. Swarup, C. Alonso-Blanco, J.R. Lynn, S.D. Michaels, R.M. Amasino, M. Koornneef and A.J. Millar*

79 **Homologues of yeast and bacterial rotenone-insensitive NADH dehydrogenases in higher eukaryotes: two enzymes are present in potato mitochondria.** *A.G. Rasmusson, Å.S. Svensson, V. Knoop, L. Grohmann and A. Brennicke*

89 **Modified expression of a carrot small heat shock protein gene, *Hsp17.7*, results in increased or decreased thermotolerance.** *M.K. Malik, J.P. Slovin, C.H. Hwang and J.L. Zimmerman*

101 **Analysis of mRNA stabilities during pollen development and in BY2 cells.** *B. Ylstra and S. McCormick*

109 **Millisecond UV-B irradiation evokes prolonged elevation of cytosolic-free Ca^{2+} and stimulates gene expression in transgenic parsley cell cultures.** *H. Frohnmeyer, L. Loyall, M.R. Blatt and A. Grabov*

119 **S-protein mutants indicate a functional role for SBP in the self-incompatibility reaction of *Papaver rhoeas*.** *N.D. Jordan, K. Kakeda, A. Conner, J.P. Ride, V.E. Franklin-Tong and F.C H. Franklin*

127 TECHNICAL ADVANCE
A glucocorticoid-inducible transcription system causes severe growth defects in *Arabidopsis* and induces defense-related genes. *H.-G. Kang, Y. Fang and K.B. Singh*

Number 2 October 1999

135 **Cross-talk between wound signalling pathways determines local versus systemic gene expression in *Arabidopsis thaliana*.** *E. Rojo, J. León and J.J. Sánchez-Serrano*

143 **Sequences throughout the basic β-1,3-glucanase mRNA coding region are targets for homology dependent post-transcriptional gene silencing.** *J.J.M.R. Jacobs, M. Sanders, M. Bots, M. Andriessen, G.J. van Eldik, K. Litière, M. Van Montagu and M. Cornelissen*

153 **A *heat shock transcription factor* in pea is differentially controlled by heat and virus replication.** *M.A. Aranda, M. Escaler, C.L. Thomas and A.J. Maule*

163 **Developmental regulated mechanisms affect the ability of a fungal pathogen to infect and colonize tobacco leaves.** *K. Hugot, S. Aimé, S. Conrod, A. Poupet and E. Galiana*

171 **A tobacco plasma membrane calmodulin-binding transporter confers Ni^{2+} tolerance and Pb^{2+} hypersensitivity in transgenic plants.** *T. Arazi, R. Sunkar, B. Kaplan and H. Fromm*

183 **UPL1 and 2, two 405 kDa ubiquitin–protein ligases from *Arabidopsis thaliana* related to the HECT-domain protein family.** *P.W. Bates and R.D. Vierstra*

197 **Glycine and serine catabolism in non-photosynthetic higher plant cells: their role in C1 metabolism.** *J.-M. Mouillon, S. Aubert, J. Bourguignon, E. Gout, R. Douce and F. Rébeillé*

207 **Harpin induces disease resistance in *Arabidopsis* through the systemic acquired resistance pathway mediated by salicylic acid and the *NIM1* gene.** *H. Dong, T.P. Delaney, D.W. Bauer and S.V. Beer*

217 ***NRSA-1*: a resistance gene homolog expressed in roots of non-host plants following parasitism by *Striga asiatica* (witchweed).** *B.S. Gowda, J.L. Riopel and M.P. Timko*

231 SHORT COMMUNICATION
Developmental control of *Xa21*-mediated disease resistance in rice. *K.S. Century, R.A. Lagman, M. Adkisson, J. Morlan, R. Tobias, K. Schwartz, A. Smith, J. Love, P.C. Ronald and M.C. Whalen*

237 SHORT COMMUNICATION
Increased resistance to oxidative stress in transgenic tobacco plants overexpressing bacterial serine acetyltransferase. *A. Blaszczyk, R. Brodzik and A. Sirko*

245 TECHNICAL ADVANCE
A rapid method for detection of plant gene transcripts from single epidermal, mesophyll and companion cells of intact leaves. *S. Brandt, J. Kehr, C. Walz, A. Imlau, L. Willmitzer and J. Fisahn*

251 TECHNICAL ADVANCE
A simple, rapid and quantitative method for preparing *Arabidopsis* protein extracts for immunoblot analysis. *J.F. Martínez-García, E. Monte and P.H. Quail*

259 TECHNICAL ADVANCE
The *Arabidopsis thaliana MERISTEM LAYER 1* promoter specifies epidermal expression in meristems and young primordia. *A. Sessions, D. Weigel and M.F. Yanofsky*

Number 3 November 1999

265 **The *Arabidopsis RPS4* bacterial-resistance gene is a member of the TIR-NBS-LRR family of disease-resistance genes.** *W. Gassmann, M.E. Hinsch and B.J. Staskawicz*

279 **A second gene at the tomato *Cf-4* locus confers resistance to *Cladosporium fulvum* through recognition of a novel avirulence determinant.** *F.L.W. Takken, C.M. Thomas, M.H.A.J. Joosten, C. Golstein, N. Westerink, J. Hille, H.J.J., Nijkamp, P.J.G.M De Wit and J.D.G Jones*

289 **Functional interaction of cryptochrome 1 and phytochrome D.** *L. Hennig, M. Funk, G.C. Whitelam and E. Schäfer*

295 **The DNA sequences of T-DNA junctions suggest that complex T-DNA loci are formed by a recombination process resembling T-DNA integration.** *S. De Buck, A. Jacobs, M. Van Montagu and A. Depicker*

305 **Barley aleurone cell death is not apoptotic: characterization of nuclease activities and DNA degradation.** *A. Fath, P.C. Bethke and R.L. Jones*

317 **Plant disease resistance genes encode members of an ancient and diverse protein family within the nucleotide-binding superfamily.** *B.C. Meyers, A.W. Dickerman, R.W. Michelmore, S. Sivaramakrishnan, B.W. Sobral and N.D. Young*

333 **Phosphoenolpyruvate carboxylase kinase is a novel protein kinase regulated at the level of expression.** *J. Hartwell, A. Gill, G.A. Nimmo, M.B. Wilkins, G.I. Jenkins and H.G. Nimmo*

343 SHORT COMMUNICATION
Unsaturated fatty acids inhibit MP2C, a protein phosphatase 2C involved in the wound-induced MAP kinase pathway regulation. *E. Baudouin, I. Meskiene and H. Hirt*

349 SHORT COMMUNICATION
Subcellular localization of ozone-induced hydrogen peroxide production in birch (*Betula pendula*) leaf cells. *R. Pellinen, T. Palva and J. Kangasjärvi*

357 TECHNICAL ADVANCE
Potato virus X amplicon-mediated silencing of nuclear genes. *S.M. Angell and D.C. Baulcombe*

363 TECHNICAL ADVANCE
Near-infrared femtosecond laser pulses as a novel non-invasive means for dye-permeation and 3D imaging of localised dye-coupling in the *Arabidopsis* root meristem. *U.K. Tirlapur and K. König*

371 TECHNICAL ADVANCE
Single pollen typing combined with laser-mediated manipulation. *S. Matsunaga, K. Schütze, I.S. Donnison, S.R. Grant, T. Kuroiwa and S. Kawano*

379 **Erratum concerning Volume 19, Number 1, July 1999, pages 75–80, Goshima *et al.***

Number 4 November 1999

381 **Distinct osmo-sensing protein kinase pathways are involved in signaling moderate and severe hyper-osmotic stress.** *T. Munnik, W. Ligterink, I. Meskiene, O. Calderini, J. Beyerly, A. Musgrave and H. Hirt*

389 **The *RCN1*-encoded A subunit of protein phosphatase 2A increases phosphatase activity *in vivo*.** *J. Deruère, K. Jackson, C. Garbers, D. Söll and A. DeLong*

401 **Seed-specific overexpression of phytoene synthase: increase in carotenoids and other metabolic effects.** *C.K. Shewmaker, J.A. Sheehy, M. Daley, S. Colburn and D.Y. Ke*

413 **Retrotransposon BARE-1: expression of encoded proteins and formation of virus-like particles in barley cells.** *M. Jääskeläinen, A.-H. Mykkänen, T. Arna, C.M. Vicient, A. Suoniemi, R. Kalendar, H. Savilahti and A.H. Schulman*

423 **Molecular mechanisms underlying carotenogenesis in the chromoplast: multilevel regulation of carotenoid-associated genes.** *M. Vishnevetsky, M. Ovadis, A. Zuker and A. Vainstein*

433 **The *UNUSUAL FLORAL ORGANS* gene of *Arabidopsis thaliana* is an F-box protein required for normal patterning and growth in the floral meristem.** *A. Samach, J.E. Klenz, S.E. Kohalmi, E. Risseeuw, G.W. Haughn and W.L. Crosby*

447 **Light perception and the role of the xanthophyll cycle in blue-light-dependent chloroplast movements in *Lemna trisulca* L.** *M. Tlałka, M. Runquist and M. Fricker*

461 **The role of calcium in blue-light-dependent chloroplast movement in *Lemna trisulca* L.** *M. Tlałka and M. Fricker*

475 ***Pseudomonas syringae* pv *tomato* induces the expression of tomato *EREBP*-like genes *Pti4* and *Pti5* independent of ethylene, salicylate and jasmonate.** *V.K. Thara, X. Tang, Y.Q. Gu, G.B. Martin and J.-M. Zhou*

485 **Lipid peroxidation and the oxidative burst associated with infection of *Capsicum annuum* by *Botrytis cinerea*.** *N. Deighton, I. Muckenschnabel, B.A. Goodman and B. Williamson*

493 **The *SERRATE* locus controls the formation of the early juvenile leaves and phase length in *Arabidopsis*.** *J.H. Clarke, D. Tack, K. Findlay, M. Van Montagu and M. Van Lijsebettens*

503 TECHNICAL ADVANCE
Spatio-temporal analysis of mitotic activity with a labile cyclin–GUS fusion protein. *A. Colón-Carmona, R. You, T. Haimovitch-Gal and P. Doerner*

Number 5 December 1999

509 **Stachyose synthesis in seeds of adzuki bean (*Vigna angularis*): molecular cloning and functional expression of stachyose synthase.** *T. Peterbauer, J. Mucha, M. Popp, J. Glössl and A. Richter*

519 **An *Arabidopsis* gene encoding a chloroplast-targeted β-amylase.** *N.T. Lao, O. Schoneveld, R.M. Mould, J.M. Hibberd, J.C. Gray and T.A. Kavanagh*

529 ***Arabidopsis thaliana* AtHAL3: a flavoprotein related to salt and osmotic tolerance and plant growth.** *A. Espinosa-Ruiz, J.M. Bellés, R. Serrano and F.A. Culiáñez-Maciá*

541 **Transient expression of members of the *germin*-like gene family in epidermal cells of wheat confers disease resistance.** *P. Schweizer, A. Christoffel and R. Dudler*

553 **Plant interstitial telomere motifs participate in the control of gene expression in root meristems.** *D. Tremousaygue, A. Manevski, C. Bardet, N. Lescure and B. Lescure*

563 **Identification of a novel peptide motif that mediates cross-linking of proteins to cell walls.** *C. Domingo, A. Saurí, E. Mansilla, V. Conejero and P. Vera*

571 **Elicitor-responsive, ethylene-independent activation of GCC box-mediated transcription that is regulated by both protein phosphorylation and dephosphorylation in cultured tobacco cells.** *S. Yamamoto, K. Suzuki and H. Shinshi*

581 **Sucrose availability on the aerial part of the plant promotes morphogenesis and flowering of *Arabidopsis* in the dark.** *M. Roldán, C. Gómez-Mena, L. Ruiz-García, J. Salinas and J.M. Martínez-Zapater*

591 **A tomato homeobox gene (HD-Zip) is involved in limiting the spread of programmed cell death.** *E. Mayda, P. Tornero, V. Conejero and P. Vera*

601 **Transcriptional activation of a heat shock gene promoter in sunflower embryos: synergism between AB13 and heat shock factors.** *A. Rojas, C. Almoguera and J. Jordano*

611 **Cloning and expression of flavone synthase II from *Gerbera* hybrids.** *S. Martens and G. Forkmann*

Number 6 December 1999

619 **Side chains of pectic polysaccharides are regulated in relation to cell proliferation and cell differentiation.** *W.G.T. Willats, C.G. Steele-King, S.E. Marcus and J.P. Knox*

629 **Molecular domains of the cellulose/xyloglucan network in the cell walls of higher plants.** *M. Pauly, P. Albersheim, A. Darvill and W.S. York*

641 **The tomato I-box binding factor LeMYBI is a member of a novel class of Myb-like proteins.** *A. Rose, I. Meier and U. Wienand*

653 **Chlorophyll breakdown by chlorophyllase: isolation and functional expression of the *Chlase1* gene from ethylene-treated *Citrus* fruit and its regulation during development.** *D. Jacob-Wilk, D. Holland, E.E. Goldschmidt, J. Riov and Y. Eyal*

663 **Metabolic engineering of *p*-hydroxybenzylglucosinolate in *Arabidopsis* by expression of the cyanogenic CYP79A1 from *Sorghum bicolor*.** *S. Bak, C.E. Olsen, B.L. Petersen, B.L. Møller and B.A. Halkier*

673 **14-3-3 proteins double the number of outward-rectifying K^+ channels available for activation in tomato cells.** *P.P. Booij, M.R. Roberts, S.A. Vogelzang, R. Kraayenhof and A.H. de Boer*

685 ***FALSIFLORA*, the tomato orthologue of *FLORICAULA* and *LEAFY*, controls flowering time and floral meristem identity.** *N. Molinero-Rosales, M. Jamilena, S. Zurita, P. Gómez, J. Capel and R. Lozano*

695 ***Nuclear export of proteins in plants: AtXPO1 is the export receptor for leucine-rich nuclear export signals in Arabidopsis thaliana.*** *D. Haasen, C. Köhler, G. Neuhaus and T. Merkle*

707 SHORT COMMUNICATION
The different pH optima and substrate specificities of extracellular and vacuolar invertases from plants are determined by a single amino-acid substitution. *M. Goetz and T. Roitsch*

713 SHORT COMMUNICATION
The N-terminal fragment of Arabidopsis photomorphogenic repressor COP1 maintains partial function and acts in a concentration-dependent manner. *C. Stoop-Myer, K.U. Torii, T.W. McNellis, J.E. Coleman and X.-W. Deng*

719 TECHNICAL ADVANCE
Transcript profiling in rice (*Oryza sativa* L.) seedlings using serial analysis of gene expression (SAGE). *H. Matsumura, S. Nirasawa and R. Terauchi*

727 **Author Index**

733 **Subject Index**